



WASTE HEAT RECOVERY IN THE HALLUIN WASTE-TO-ENERGY (WTE) PROCESSING PLANT

CONSTRUCTION OF AN ENERGY HIGHWAY TO RECOVER HEAT FOR URBAN HEAT NETWORKS IN THE URBAN METROPOLIS OF LILLE (MEL)

This project entails recovering waste heat produced by the WtE plant in Halluin (800 GWh per year) during the treatment of municipal waste, superheating water to 120°C, then transporting it more than 20 km to supply the Lille and Roubaix urban heat networks.

The project will cost an estimated €60M, and will improve recovery of waste-to-energy in the form of heat as well as develop new heat networks.

Work is scheduled to begin in 2018 and will go into effect in 2020.

INNOVATIONS

- ▶ An objective to recover 300 GWh per year of waste energy in the form of heat.
- ▶ More than 50 MW of power available for urban heat networks, unique in France.
- ▶ An "energy highway" of more than 20 km in an urban setting.
- ▶ An investment that will lower the cost of waste treatment and will recover sustainable and economical energy for urban heat networks.

STAKEHOLDERS

- ▶ This project is above all a concrete illustration of the advantages of expanding the MEL's competences to the territorial level.
- ▶ Before 1 January 2015 and the MATPAM law, the metropolis had jurisdiction over waste management, and towns were responsible for heating networks. The result is that heat waste was only partially recovered in the form of electricity at the WtE site.
- ▶ After 1 January 2015, when the MEL took on its new competences, there was an opportunity to recover heat produced in the WtE plant in the metropolis' urban heat networks.
- ▶ The project stakeholders are the MEL, the operators of the WtE plant and the heat networks, the cities, and ADEME for the project funding.

KEY FIGURES

- 300 GWh of waste energy recovered for the heat networks
- More than 20 km of transport networks
- €60M investment over 20 years entirely covered by the sale of heat

IMPLEMENTATION

► A 20 km network of two pipelines (DN 500) will be installed to transport heat at 120°C along a semi-urban and then urban route. Construction and operations will be entrusted to the operator of the municipal waste incineration plant as part of a concession for the modernisation and operation of the plant.

This route will need to be adjusted in response to obstacles in its path, such as canals, highways, tramway lines, and the many existing networks. The route will also be chosen based on the development potential for future customers.

► Lastly, a tripartite contract between the MEL, the plant operator, and the operator of the Lille and Roubaix heat network will be established to define the technical and economic conditions for purchasing heat from the WtE plant.

Erwan Lemarchand,
the MEL's Energy Director



This is a major project for the territory demonstrating the advantage of transferring competences to the metropolis: improved waste recovery thanks to oversight of the heat networks, the development of the territory's renewable energy for the benefit of its inhabitants, and long-term cost control for energy and waste treatment. It's the proof that a territory can make a concrete contribution to the energy transition.



RESULTS

/// The Hauts-de-France region has some of the highest energy consumption in the county due to its industrial activity, and is also among the lowest producers of renewable energy. The MEL's Territorial Climate Energy Plan set an ambitious target to produce 3,000 GWh of renewable and recoverable energy for its own consumption by 2020. With this project, 10% of that target will be met.

/// This project will also cover 50% of the heating needs of 60,000 equivalent housing units that are now heated by an urban heat network.

/// Customers will also benefit from a VAT that is reduced to 5.5%, thus reducing their energy bill.

/// Lastly, recovering heat from the WtE plant for the MEL's heat networks will significantly improve the energy efficiency of the WtE plant with R1 status (used as a reference at the national level, particularly to calculate the TGAP tax, a general tax on polluting activities), which will go from 64% to more than 75%.



FINANCIAL ASPECTS OF THE PROJECT

/// A 20-year investment of €60M, with €50M to develop the energy highway and €10M to modernise the urban heat networks.

/// ADEME will provide financial support for this project.

- Coverage of 50% of the heating needs of the 60,000 housing units connected to an urban heat network
- 30,000 tonnes of oil equivalent recovered, and 7,000 tonnes of coal equivalent removed
- VAT reduced to 5.5% for the sale of heat to customers



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